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Urinary Incontinence and Voiding Difficulty in a Young Woman

Eric Chieh-Lung Chou*
Department of Urology, China Medical University Hospital, Taichung, Taiwan

*Corresponding author. Department of Urology, China Medical University Hospital, 2, Yuh-Der Road, Taichung 40447, Taiwan.
E-mail: ericchou66@yahoo.com.tw

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1. Clinical Presentation

A 22-year-old girl visited the urology outpatient clinic with chief complaints of urinary frequency, difficulty in urination, and urge incontinence. Her history revealed that she had experienced acute onset of four-limb/trunk numbness with hiccup, severe swallowing difficulty, hoarseness, and bilateral facial weakness 6 months previously. Magnetic resonance imaging revealed focal edema in the lower dorsal medulla oblongata and a long segment of edema from the lower brain stem to the upper thoracic spinal cord. Difficulty in urination and constipation were associated with the overactive bladder symptoms. She received endotracheal tube with ventilator support because of respiratory failure. The symptoms improved 3 weeks later with neurologic sequelae of mild numbness in the distal fingers after medication and rehabilitation therapy. She recovered to be able to walk slowly without assistance and needed intermittent urinary catheterization twice a day with residual urine amount of 160–180 mL. Multiple sclerosis (MS) was diagnosed by neurologists.

2. Videourodynamic Studies and Findings

Free uroflowmetry was arranged (Figure 1) and 3-day voiding diary was acquired (Figure 2). Videourodynamic study was performed with a 7F dual-lumen vesical catheter and a 9F rectal balloon catheter with surface patch electromyography at medium filling using radiographic contrast in the sitting position. Prior to the examination, the patient was asked to void, and post-void residual was measured with the catheter. The infusion rate was 20 mL/min. During bladder filling, the patient was instructed to neither void nor inhibit micturition but simply to report her sensations to the examiner. If detrusor overactivities were detected, the patient was asked to describe what she felt and to try to abort the detrusor contraction voluntarily by contracting the sphincter.

Detrusor overactivity observed when 180 mL normal saline was infused into urinary bladder (Figure 3). The involuntary contraction could not be inhibited by the patient herself and urine leakage proceeded. Detrusor-sphincter dyssynergia was detected using electromyography.

3. Treatments and Follow-up

Under the impression of detrusor overactivity with detrusor-sphincter dyssynergia, 120 units of botulinum toxin A was injected into the submucosa of the urinary bladder, another 80 units of botulinum toxin A was administered to the external sphincter. There was no urge or stress urinary incontinence after the therapy. The symptoms of overactive bladder were much improved. Although the patient still required straining to void, voiding was easier. The maximum urine flow rate improved from 12 to 20 mL/s (Figure 4). Self-catheterization was performed before bedtime with residual urine amount of 100–200 mL. There was no episode of urinary tract infection during the follow-up period. Recurrent overactive bladder symptoms were observed about 8 months after the botulinum toxin injection. She received the same regime of therapy every 9 months.

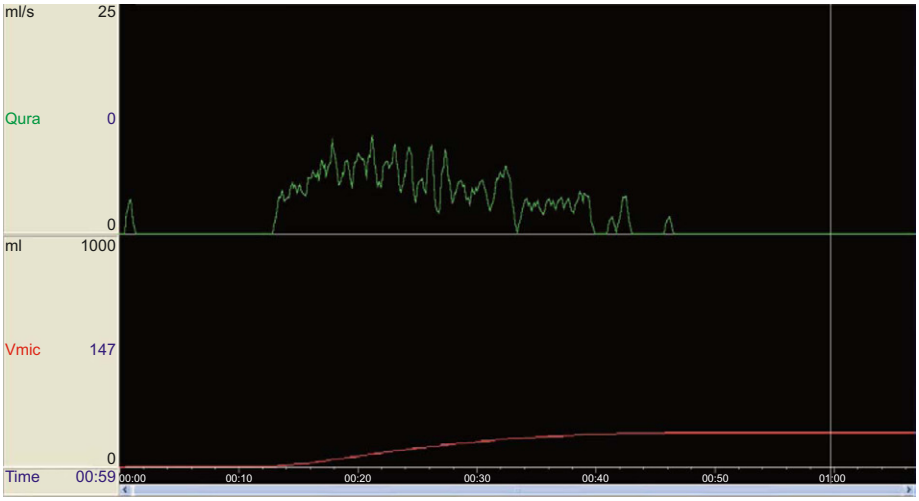

Figure 1 Free uroflowmetry before treatment.

Time	Amount voided (mL)	Amount by catheterization (mL)	Amount voided (mL)	Amount by catheterization (mL)	Amount voided (mL)	Amount by catheterization (mL)
0000–0100					340	
0100–0200	200					
0200–0300					250	
0300–0400						
0400–0500						
0500–0600					310	
0600–0700	270					
0700–0800						
0800–0900						
0900–1000	330	150	230	150	250	150
1000–1100						
1100–1200						
1200–1300						
1300–1400						
1400–1500						
1500–1600	100					
1600–1700						
1700–1800			280			
1800–1900	230				200	
1900–2000			130			
2000–2100						
2100–2200					280	150
2200–2300	200	120	330	150		
2300–0000						
Total	1330	270	970	300	1630	300

Figure 2 Voiding diary.

4. Discussion

MS is a rare disease in Taiwan. The prevalence was as low as 1.9 per 100,000 in Taiwan.[1] However, the distribution of MS is uneven, with prevalence ranging between 2 and 150 per 100,000, which is much higher than in white populations.[2] MS affects about 85,000 people in the UK, and is the commonest progressive neurologic disease affecting young people.[3] Its diagnosis is mainly based on the clinical course, which is characteristically "scattered in time and space" within the neuraxis. Bladder dysfunction can be found in up to 75% of patients with MS.[3]

Considering that MS is rare in Taiwan, the experiences in dealing with the complications of voiding dysfunction in MS patients may be scarce for Taiwanese urologists. The main clinical presentations of voiding dysfunction are overactive bladder syndrome characterized by urgency, urinary frequency and/or urge incontinence (irritative

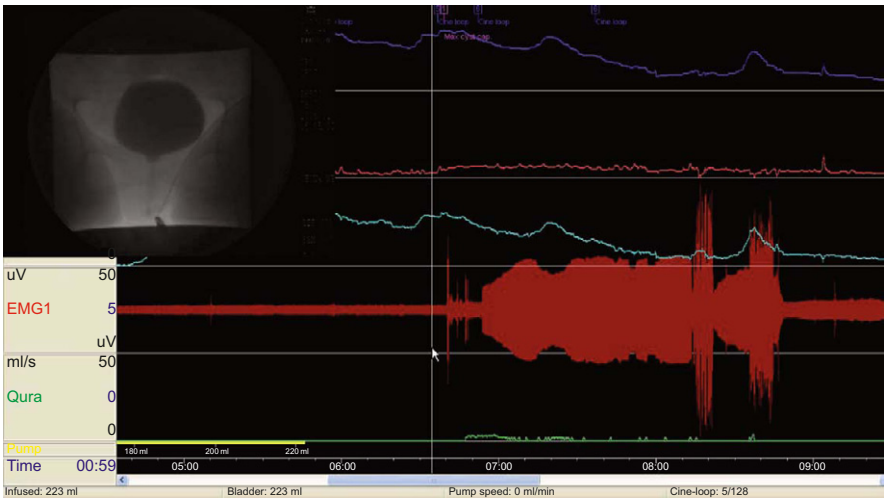

Figure 3 Videourodynamic VUDS showing involuntary contraction and urine leakage proceeded by detrusor-sphincter dyssynergia.

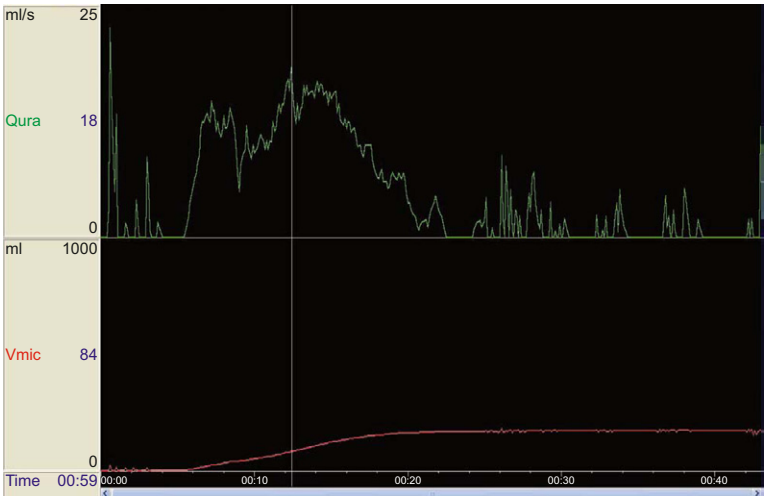

Figure 4 Free uroflowmetry after botulinum toxin injection to external sphincter.

symptoms), with a prevalence of 37–99% in MS patients.[4,5] Obstructive symptoms are also frequently reported, affecting between 34% and 79% of patients and in 25% of cases resulting in chronic urinary retention.[4,5] Irritative and obstructive symptoms often coexist, and may jointly affect up to 59% of men and 51% of women.[6]

Urodynamic studies provide important information for diagnosis and treatment. A three-day voiding diary provides the voiding frequency and bladder functional capacity. Uroflowmetry measures flow patterns and residual urine. The videourodynamic study identifies the detrusor, sphincter function, and bladder outlet obstruction level.

Neurotoxins may improve refractive urinary incontinence in adults with spinal cord injury or MS.[7] MacDonald et al.[7] evaluated the effectiveness of neurotoxin treatments for urinary incontinence in individuals with spinal cord injury or MS. The results showed that botulinum toxin A was superior to placebo and resiniferatoxin in reducing daily urinary incontinence episodes.[7]

References

1. Tsai CP, Yuan CL, Yu HY, Chen C, Guo YC, Shan DE. Multiple sclerosis in Taiwan. *J Chin Med Assoc* 2004;67:500–5.
2. Rosati G. The prevalence of multiple sclerosis in the world: an update. *Neurol Sci* 2001;22:117–39.
3. Rantell A. Lower urinary tract symptoms in women with multiple sclerosis: part 1. *Br J Nurs* 2009;18:S14, S16–8.
4. Amarenco G, Kerdraon J. Bladder and sphincter dysfunction in multiple sclerosis. Clinical, urodynamical and neurophysiologic study of 225 cases. *Rev Neurol* 1995;151:722–30.
5. Blaivas JG, Bhimani G, Labib KL. Vesicourethral dysfunction in multiple sclerosis. *J Urol* 1979;122:342–7.
6. Giannantoni A, Sciviletto G, Di Stasi SM, Grasso MG, Vespasiani G, Castellano V. Urological dysfunctions and upper urinary tract involvement in multiple sclerosis patients. *Neurourol Urodyn* 1998; 17:89–98.
7. MacDonald R, Monga M, Fink HA, Wilt TJ. Neurotoxin treatments for urinary incontinence in subjects with spinal cord injury or multiple sclerosis: a systematic review of effectiveness and adverse effects. *J Spinal Cord Med* 2008;31:157–65.